

Application No.: 10/593,167
Filing Date: September 14, 2006

AMENDMENTS TO THE CLAIMS

Please amended Claims 1-6 and 8-12 as follows.

Please cancel Claims 18-27 without prejudice.

1. (Currently amended) A traction control system for a vehicle ~~which is constituted so as to drive an engine throttle drive actuator according to a result of sensing an accelerator operation state of the vehicle and thereby cause a target drive force to be generated, the traction control system comprising:~~

a sensor unit disposed in a rotation mechanism section including a wheel and a body of rotation positioned in the vehicle body side[[,]] for securing [[a]] the wheel and allowing the wheel to rotate, ~~and the wheel,~~ the sensor unit sensing a first acceleration generated in association with rotation in a direction orthogonal to [[the]] a rotation axis, and a second acceleration generated in a direction of rotation, and converting [[a]] sensing results of the first and second accelerations to a digital value, and transmitting digital data including the digital value;

a monitor apparatus which receives the digital data transmitted from the sensor unit to acquire the sensing results of the first and second accelerations; and

a drive control unit configured to control at least one of a first drive actuator for drive means which drives the an engine throttle drive actuator and a second actuator for a drive torque distribution mechanism based on at least the sensing results of the first and second accelerations acquired by the monitor apparatus so as to cause a target drive force to be generated.

2. (Currently amended) The traction control system according to Claim 1, wherein:

the sensor unit includes means which senses a third acceleration generated in a direction of the rotation axis, converts the sensing result to a digital value, and transmits the digital value, included in the digital data, to the monitor apparatus;

the monitor apparatus includes means which acquires the sensing result of the third acceleration; and

the drive control unit ~~drive means~~ has means which drives the first drive actuator ~~engine throttle drive actuator~~ based on the sensing results of the first, second and third accelerations.

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3. (Currently amended) The traction control system according to Claim 2, wherein:
the sensor unit includes means which senses a change of the second acceleration, means which senses the number of rotations per unit time based on the change of the second acceleration, and means which converts the sensed number of rotations to a digital value and transmits the digital value, included in the digital data, to the monitor apparatus;

the monitor apparatus includes means which receives the digital value of the number of rotations from the sensor unit; and

the drive control unit ~~drive means~~ includes means which drives the first actuator engine throttle drive actuator based on the sensing results of the first, second and third accelerations and the sensing result of the number of rotations.

4. (Currently amended) The traction control system according to Claim 2, wherein:
the sensor unit includes means which senses a change of the first acceleration, means which senses the running speed based on the change of the first acceleration, and means which converts the sensed running speed to a digital value and transmits the digital value, included in the digital data, to the monitor apparatus;

the monitor apparatus includes means which receives the digital value of the running speed from the sensor unit; and

the drive control unit ~~drive means~~ includes means which drives the first actuator engine throttle drive actuator based on the sensing results of the first, second and third accelerations and the sensing result of the running speed.

5. (Currently amended) The ~~[[A]]~~ traction control system according to Claim 1, ~~for a vehicle which is constituted so as to drive each drive actuator of an engine throttle and a drive torque distribution mechanism according to a result of sensing an accelerator operation state of the vehicle and thereby cause a target drive force to be generated, the traction control system additionally comprising:~~

at least another sensor unit ~~a plurality of sensor units~~ disposed in at least another ~~each of a plurality of rotation mechanism section sections~~ including another wheel and another ~~[[a]]~~ body of rotation positioned in the vehicle body side~~[[,]]~~ for securing the other ~~[[a]]~~ wheel and allowing the other wheel to rotate, ~~and the wheel, respectively, the other plurality of sensor unit units sensing [[a]] another first acceleration generated in association with rotation in [[a]] the~~

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direction orthogonal to the rotation axis, and [[a]] another second acceleration generated in [[a]] the direction of rotation, and converting [[a]] other sensing results of the other first and second accelerations to [[a]] another digital value, and transmitting another digital data including the other digital value;

wherein the [[a]] monitor apparatus ~~which additionally~~ receives the other digital data transmitted from the other ~~plurality of sensor unit units~~ to acquire the other sensing results of the other first and second accelerations; and

wherein the drive control unit is additionally configured to control a predetermined one of the first drive actuator and the second actuator ~~control means which controls the drive of a predetermined one from among each said drive actuator~~ based on [[the]] certain sensing results of the first and second accelerations acquired by the monitor apparatus.

6. (Currently amended) The traction control system according to Claim 5, wherein the drive torque distribution mechanism includes means which distributes to at least one from among the ~~plurality of~~ wheels, the drive torque generated in association with the drive of the engine throttle.

7. (Original) The traction control system according to Claim 6, wherein the drive torque distribution mechanism includes means which varies the ratio of the drive torque to successive values from 0 to 100.

8. (Currently amended) The traction control system according to Claim 5, wherein:
the sensor unit includes means which senses a third acceleration generated in a direction of the rotation axis, converts the sensing result to a digital value, and transmits the digital value, included in the digital data, to the monitor apparatus;

the monitor apparatus includes means which acquires the sensing result of the third acceleration; and

the drive control unit ~~control means~~ has means which controls the drive of [[a]] the predetermined one of the first drive actuator and the second actuator ~~from among each said drive actuator~~ based on the sensing results of the first, second and third accelerations.

9. (Currently amended) The traction control system according to Claim 8, wherein:
the sensor unit includes means which senses a change of the second acceleration, means which senses the number of rotations per unit time based on the change of the second

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acceleration, and means which converts the sensed number of rotations to a digital value and transmits the digital value, included in the digital data, to the monitor apparatus;

the monitor apparatus includes means which receives the digital value of the number of rotations from the sensor unit; and

the drive control unit ~~control means~~ has means which controls the drive of ~~[[a]]~~ the predetermined one of the first drive actuator and the second actuator ~~from among each said drive actuator~~ based on the sensing results of the first, second and third accelerations and the sensing result of the number of rotations.

10. (Currently amended) The traction control system according to Claim 8, wherein:

the sensor unit includes means which senses a change of the first acceleration, means which senses the running speed based on the change of the first acceleration, and means which converts the sensed running speed to a digital value and transmits the digital value, included in the digital data, to the monitor apparatus;

the monitor apparatus includes means which receives the digital value of the running speed from the sensor unit; and

the drive control unit ~~control means~~ has means which controls the drive of ~~[[a]]~~ the predetermined one of the first actuator and the second actuator ~~from among each said drive actuator~~ based on the sensing results of the first, second and third accelerations and the sensing result of the running speed.

11. (Currently amended) The traction control system according to Claim 9, wherein the drive control unit ~~control means~~ has means which controls the drive of ~~[[a]]~~ the predetermined actuator ~~from among each said drive actuator~~ so that the difference of the number of rotations becomes equal to or smaller than ~~[[the]]~~ a predetermined value, when the difference between the numbers of rotations sensed by two or more predetermined sensor units ~~from among the plurality of sensor units~~ is larger than ~~[[a]]~~ the predetermined value.

12. (Currently amended) The traction control system according to Claim 10, wherein the drive control unit ~~control means~~ has means which controls the drive of ~~[[a]]~~ the predetermined actuator ~~from among each said drive actuator~~ so that the difference of the running speed becomes equal to or smaller than ~~[[the]]~~ a predetermined value, when the difference

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between the running speeds sensed by two or more predetermined sensor units ~~from among the plurality of sensor units~~ is larger than ~~[[a]]~~ the predetermined value.

13. (Original) The traction control system according to Claim 1, wherein the sensor unit is disposed in the body of rotation.

14. (Original) The traction control system according to Claim 1, wherein:
the sensor unit includes means which receives a radio wave of a first frequency, means which converts the energy of the received radio wave of the first frequency to electric drive energy, and means which is operated by the electric energy to transmit the digital data by use of a radio wave of a second frequency; and

the monitor apparatus includes means which radiates the radio wave of a first frequency, means which receives the radio wave of a second frequency, and means which extracts the digital data from the received radio wave of the second frequency.

15. (Original) The traction control system according to Claim 14, wherein the first frequency is identical to the second frequency.

16. (Original) The traction control system according to Claim 1, wherein:
the sensor unit includes storage means which includes stored therein identification data unique to the self, and means which transmits the identification data included in the digital data; and

the monitor apparatus includes means which identifies the rotation mechanism section based on the identification data.

17. (Original) The traction control system according to Claim 1, wherein the sensor unit includes a semiconductor acceleration sensor, having a silicon piezo diaphragm, for sensing accelerations orthogonal to each other.

18-27. (Cancelled)

28. (Original) A sensor unit which senses an acceleration generated in association with rotation, disposed in a rotation mechanism section including a body of rotation positioned in the vehicle body side, for securing a wheel and allowing the wheel to rotate, and the wheel, the sensor unit being included in a traction control system for a vehicle which is constituted so as to drive an engine throttle drive actuator according to a result of sensing an accelerator operation

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state of the vehicle and thereby cause a target drive force to be generated, the sensor unit comprising:

means which senses a first acceleration generated in association with rotation in a direction orthogonal to the rotation axis, and a second acceleration generated in a direction of rotation;

means which converts the sensing results of the first acceleration and the second acceleration to a digital value; and

means which transmits digital data including the digital value.